Quantitative Human Health Risk Assessment:
Stat 484/684
Dr. Loren Raun

Objective: Learn and apply risk assessment (cancer and noncancer) methodology to estimate human health risk from environmental exposure on a site specific and global level. Understand the implications on a site specific and federal and national level.

Emphasis: **real world application**

Time: Monday and Wednesday , 5:15-6:30 pm,

Location: Sewell 101

Prerequisite: Two semesters of basic statistics

Grading: 60% homework and assessments, 15% midterm (take home) and 25% final (take home), **class attendance is required.**

Homework: due one week after assigned

Text: Instructor notes, EPA guidance, journal articles

Instructor: Loren Raun raun@rice.edu 713-417-1896

Office hours: by appointment

Superfund Risk Assessment (site specific)

M 8/26	introduction to superfund risk assessment, RAGS Chapter 1-4.3
W 8/28	data collection for risk assessment, background samples, sample size estimation, RAGS 4.4 to 4.9,
M 9/2	labor day **no class**
W 9/4	Chapter 4
M 9/9	data evaluation for risk assessment, RAGS Chapter 5, sample size
W 9/11	data evaluation for risk assessment, Chapter 5, comparison to background
M 9/16	exposure assessment continued, RAGS Chapter 6, 95th UCL of mean, GOF
W 9/18	exposure assessment continued, RAGS Chapter 6, inverse distance weighting
M 9/23	exposure assessment continued, RAGS Chapter 6, Theissan polygon
W 9/25	toxicity assessment for risk assessment, RAGS Chapter 7, linear dose/response
M 9/30	toxicity assessment for risk assessment, RAGS Chapter 7, nonlinear dose/response
W 10/2	risk characterization. RAGS Chapter 8, Monte Carlo, Sensitivity Analysis
M 10/7	risk characterization. RAGS Chapter 8
W 10/9	risk characterization. RAGS Chapter 8 ,**midterm assigned**
M 10/14	midterm recess, **no class**
W 10/16	continued, **midterm due**

Risk based clean up levels, **Screening levels/Risk Assessment in Policy**

M 10/21	ESLs, RBSLs, EPA Region 6 Screening levels
W 10/23	calculation of screening levels and cleanup levels
M 10/28	clean up levels continued
W 10/30	clean up levels continued

M 11/4 statistical comparison to clean up levels

More Modeling for Risk Assessment

W 11/6 models, air, soil, groundwater, beef, vapors
M 11/11 models
W 11/13 models
M 11/18 models
W 11/20 risk project
M 11/25 risk project
W 11/27 risk project
M 12/2 risk project
W 12/4 review, last day